

ABSTRACT

A process for depositing a film onto a bare or unplated zinc or zinc alloy substrate is provided. The process includes directly depositing a film onto a portion of the substrate by physical vapor deposition. The film may be a metal film, a ceramic film or a combination thereof, wherein the metal film includes chromium, nickel, titanium, zirconium or a combination thereof. The ceramic film includes a nitride, a carbide, an oxide or a nitroxide of chromium, nickel, titanium, zirconium, or a combination thereof.